

Remarks

Applicant appreciates the Examiner's indication that claim 4 is allowable over the prior art of record. Additionally, in the final Office Action of December 12, 2005, the Examiner rejected claims 1-3, 7, and 9-12 under 35 U.S.C. § 102(e) as being anticipated by over U.S. Patent No. 6,163,528 to Nagamoto ("Nagamoto"). For the following reasons, Applicant requests that the Examiner reconsider and withdraw this rejection.

As discussed in the previous response, Nagamoto does not disclose each feature recited in claim 1. Nagamoto, for example, does not disclose or suggest the discard means recited in claim 1, which selectively discards the received cells from the subscribers based on a communication state determined by cells received from the switching unit and cells received from the subscribers and based on the level value of the congestion state. Nagamoto, in contrast to the features of claim 1, in no way discloses or suggests a communication state determined as recited in claim 1, much less discard means that selectively discards cells based on the communication state and based on the level value of a congestion state.

Nagamoto generally discloses a selective cell discard system in an ATM switch. (Nagamoto, Title). In Fig. 2, Nagamoto illustrates a number of selective cell discard controllers (PD). The operation of the PDs are said to relate to a congestion state of the cell buffers (CBs) shown in Fig. 2 and on a service class of the cells. (See Nagamoto, col. 4, lines 6-9). Basing a cell discard operation on a congestion state and/or the service class of cells, as disclosed by

Nagamoto, does not reasonably correspond to the discard means recited in claim 1, which selectively discards the received cells from the subscribers based on, among other things, a communication state determined by cells received from the switching unit and cells received from the subscribers. The congestion state of the cell buffers of Nagamoto cannot be said to be a communication state determined by cells received from the switching unit and cells received from the subscribers. Similarly, the service class of a cell in Nagamoto is not equivalent to the communication state recited in claim 1.

Arguments similar to those above were presented in the previous amendment. In the “Response to Arguments” section of the final Office Action, the Examiner responded to these previously presented arguments. More specifically, the Examiner contends that Nagamoto discloses a “discard means” that selectively discards cells. The Examiner appears to particularly point to the fact that Nagamoto selectively discard cells as evidence that Nagamoto discloses the features recited in claim 1.

Applicant does not disagree with the Examiner’s contention that Nagamoto selectively discards cells. At column 2, lines 45-66 of Nagamoto, for instance, Nagamoto describes a switch that includes a selective discard controller and means for detecting congestion in a cell buffer. Although Nagamoto discards cells, the discard controller of Nagamoto does not make discard decisions in the manner recited by the discard means recited in claim 1. More specifically, the discard means of claim 1 selectively discards received cells from the subscribers based on a communication state determined by cells received from the switching

unit and cells received from the subscribers and based on the level value of the congestion state. The selective discard controller of Nagamoto, however, discards cells based on a congestion state and/or the service class of cells, but is not disclosed or suggested as discarding cells based on the communication state recited in claim 1.

In the final Office Action, the Examiner points to portions of columns 2 through 5 of Nagamoto as allegedly disclosing the discard means recited in claim 1. (Final Office Action, page 3). These sections of Nagamoto relate to the operation of the cell buffers (CBs) and selective cell discard controllers (PDs) of Nagamoto. Column 4 of Nagamoto, for instance, states in pertinent part:

Next, the cell discard control operation of PD relating to the congestion state of CB1 will be explained.

The cell discard control varies depending on the service class of cell. In a class such as CBR (constant bit rate), rt-VBR (real time variable bit rate) and nrt-VBR (non real time variable bit rate), the connection is set by CAC (connection admission control) according to the throughput characteristic. Therefore, even when the cell discard by the overflow of cell buffer at CB1 of SW1 occurs, it does not give a serious influence to the traffic of other class or other output port.

. . . Next, the cell discard control at PD is conducted according to the congestion state at the cell buffer CB1 for output port group, where a threshold value (for example, a common threshold value to all the buffers) to each of the buffers CB1-1 to -y is preset and the number of staying cells in a concerned buffer and its threshold are compared. If the number of staying cells \geq preset threshold value . . (1), the signal of logic "1" is output, and if it is not so, the signal of logic "0" is output. These signals are hereinafter referred to as "a back pressure signal (or abbreviated as 'BP')".

The selective cell discard controllers PD1 to PDx check the logic of signal BP from a passed cell buffer of the cell buffers CB1 for output port group according to routing information of the input cell. When at least one signal of "1" exists, BP to the concerned input

cell is processed as logic "1"(congestion existing).

(Nagamoto, column 4, lines 6-16 and 34-49). As described in these sections of Nagamoto, cell discard control is based on factors, such as the service class of a cell and the congestion state at the cell buffers (as communicated by a back pressure 'BP' signal). These factors do not disclose or suggest the discard means recited in claim 1, which selectively discards the received cells from the subscribers based on, among other things, a communication state determined by cells received from the switching unit and cells received from the subscribers. The service class of a cell, in particular, cannot be said to be equivalent to the communication state recited in claim 1.

Additionally, Applicant notes that QoS, service class, and congestion state information of Nagamoto appear to be factors related to the cell buffers (CB1). As shown in Fig. 2, the cell buffers are in switch unit (SW1) of Nagamoto. The communication state received in claim 1, however, is determined by cells received from the switch unit and cells received from the subscriber.

In the "Response to Arguments" section of the final Office Action, the Examiner further contends that "the congestion state inherently incorporates the overall communications state of a network, therefore by default Nagamoto does disclose the recited limitations of claims 1 & 9 and therefore claims 1 & 9 stand rejected." (Final Office Action, page 7). Applicant respectfully disagrees with this statement. Simply because Nagamoto discloses a "congestion state" does not inherently mean that the congestion state of Nagamoto is determined in the same manner in which the communication state recited in claim 1 is determined.

Additionally, Applicants notes that the communication state of claim 1 is recited as being “determined by cells received from the switching unit and cells received from the subscribers and based on the level value of the congestion state.” (emphasis added). Thus, even if the congestion state of Nagamoto was equivalent to the congestion state recited in claim 1 (a point Applicant does not concede), Nagamoto would still not disclose or suggest the communication state recited in claim 1, which is determined based on a level value of the congestion state and based on cells received from the switching unit and cells received from the subscribers.

For at least these reasons, Applicant submits that Nagamoto does not disclose each of the features recited in claim 1. Accordingly, the rejection of claim 1 under 35 U.S.C. § 102(e) is improper and should be withdrawn. The rejections of claims 2-3 and 7 under 35 U.S.C. § 102(e) are also improper, at least by virtue of the dependency of these claims from claim 1. Additionally, claims 2-3 and 7 independently recite features not disclosed or suggested by Nagamoto.

Claim 2, for example, recites that the communication state of claim 1 is updated on the basis of header information included in the received cells from the switching unit and header information included in the received cells from the subscribers. As previously discussed, Nagamoto does not disclose or suggest the communication state recited in claim 1, and Nagamoto certainly does not disclose or suggest updating a communication state based on header information

included in received cells from the switching unit and header information included in the received cells from the subscribers.

In rejecting claim 2, the Examiner appears to contend that Nagamoto discloses cells and that header information is inherent in cells. (Final Office Action, page 3). Further, in the "Response to Arguments" section of the final Office Action, the Examiner gives official notice that it is known to update header information in cells traversing a network. (Final Office Action, page 7). Applicant submits that the Examiner is ignoring features recited in claim 2. Claims 1 and 2 recite more than simply updating a switching unit or updating cell header information. Instead, claim 2 recites that the communication state, which is used by the discard means as recited in claim 1, is updated in the specific manner recited in claim 2. Nowhere does Nagamoto disclose updating any type of communication state information that is then used by the selective cell discard controllers of Nagamoto, much less updating the communication state information in the specific manner recited in claim 2. For at least these additional reasons, claim 2 is not anticipated by Nagamoto.

Independent claim 9 also stands rejected under 35 U.S.C. § 102(e) based on Nagamoto. Applicant respectfully traverses the rejection.

Claim 9 is directed to a method of discarding cells. The method includes receiving cells sent from subscribers and detecting a congestion state of the received cells from the subscribers and updating a communication state determined based on the received cells from the subscribers and based on received cells from a switching unit. The method of claim 9 further includes

deciding, to obtain a decision result, whether discard processing of the received cells from the subscribers is performed on the basis of the updated communication state and a level value of a signal indicating the congestion state, said level value indicating an amount of congestion. Further, the method of claim 9 includes selectively performing the discard processing on the basis of the decision result.

As previously mentioned, although Nagamoto may be said to discard cells in a switching unit, Nagamoto does not disclose or suggest discarding cells based on a communication state and a level value of a signal indicating a congestion state, in which, as recited in claim 9, the communication state is updated based on received cells from subscribers and based on received cells from a switching unit. Instead, Nagamoto explicitly discloses cell discard control based on factors such as the service class of a cell and the congestion state at the cell buffers. Accordingly, Nagamoto cannot be said to disclose each of the features of claim 9.

For at least these reasons, the rejection of claim 9 under 35 U.S.C. § 102(e) is improper and should be withdrawn.

Independent claim 10 and its dependent claims 11 and 12 also stand rejected under 35 U.S.C. § 102(e) based on Nagamoto. Applicant respectfully traverses this rejection of these claims.

Claim 10 is directed to a multiplexing device including a discard control component configured to maintain communication state information determined based on header data of cells received from a switch and a subscriber. The

device of claim 10 further includes a detection component including a queue for storing cells from the subscriber and a comparison component configured to compare a degree of occupancy of the queue to a threshold to obtain a congestion level corresponding to an amount of congestion of the queue. The discard control component selectively discards cells received from the subscriber based on the congestion level and the communication state information.

Nagamoto does not disclose each of the features recited in claim 10. Nagamoto, for example, does not disclose or suggest a multiplexing device including a discard control component configured to maintain communication state information determined based on header data of cells received from a switch and a subscriber, where the discard control component selectively discards cells received from the subscriber based on the congestion level and the communication state information. Nagamoto may be said to discard cells in a switching unit. Nagamoto, however, does not disclose or suggest, as is recited in claim 10, a discard control component that selectively discards cells received from a subscriber based on a congestion level and based on communication state information, in which the communication state information is determined based on header data of cells received from a switch and a subscriber.

For at least these reasons, Applicant submit that Nagamoto does not disclose or suggest each feature of claim 10 and the rejection of this claim under 35 U.S.C. § 102(e) is improper and should be withdrawn. The rejections of claims 11 and 12 under 35 U.S.C. § 102(e) should also be withdrawn, at least by virtue of their dependency from claim 10.

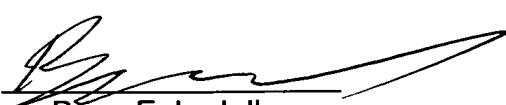
Applicant respectfully requests that this Response under 37 C.F.R. § 1.116 be considered by the Examiner, placing claims 1-4, 7, and 9-12 in condition for allowance. Applicant respectfully points out that the final action by the Examiner presented some new arguments as to the application of the art against Applicant's invention.

In view of the foregoing amendments and remarks, Applicant respectfully requests the Examiner's reconsideration of this application, and the timely allowance of the pending claims.

To the extent necessary, a petition for an extension of time under 37 CFR 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

HARRITY SNYDER, L.L.P.

By: 
Brian E. Ledell
Reg. No. 42,784

11350 Random Hills Road
Suite 600
Fairfax, Virginia 22030
(571) 432-0800

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